Emergency airway management in a case of lingual haematoma

R J Shaw, G W McNaughton

Abstract

A previously unreported cause of acute tongue swelling is presented and the airway issues discussed. Cases with different aetiology have been sporadically published however the consequent, and sometimes fatal, airway obstructions have been dealt with somewhat variably. The aetiogy of acute tongue swelling and modern emergency airway algorithms are discussed with reference to the literature.

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Case report

A 50 year old alcoholic man was admitted to the accident and emergency department in a collapsed state. Primary survey demonstrated obstructed upper airway noises, presence of blood in and around the mouth and massive tongue swelling. Further examination revealed lingual and sublingual haematoma sufficient to prop the mouth open (fig 1). After sitting the patient forwards the airway was immediately improved with simultaneous improvement in conscious level. The patient was tachycardic, tremulous and initially uncooperative, giving no useful history. Attending relatives gave a history that he had stopped drinking four days previously, following a daily alcohol habit of 30 units. The working diagnosis was alcohol withdrawal seizures complicated by lingual haematoma secondary to tongue biting. Anaesthetic and ENT opinions regarding airway management and admission were obtained.

Medical management was instituted with intravenous corticosteroids in an attempt to limit any further lingual oedema (hydrocortisone 250 mg four times a day) and carefully titrated benzodiazepines to prevent further seizure activity (diazepam 1–2 mg increments intravenously). Investigations revealed thrombocytopenia (platelets 40 × 10^9/l), coagulopathy (prothrombin time 24 s, activated partial thromboplastin time 40 s, fibrinogen 120 mg/dl) and alcoholic liver disease (bilirubin 95 µmol/l, γ-glutamyltransferase 998 IU/l, alkaline phosphatase 46 IU/l). Coagulation was rapidly normalised with fresh frozen plasma and platelet transfusion. The decision not to create a surgical airway was made only after a period of active and continuous observation. A little further swelling was well tolerated and the patient made a good recovery to be discharged eight days later.

Figure 1 Lingual enlargement at presentation in the accident and emergency department.

Table 1 The Lemon Law

Mnemonic:		*Findings in case:*
L	Look carefully	Trauma/blood/moustache
E	Evaluate 3-3-2 rule*	(no problem)
M	Mallampati†	Grade IV
O	Obstruction	Massive tongue swelling
N	Neck movement	(no problem)

*Evalaution of neck anatomy in terms of finger's breadth distances 3 fingers: mouth opening, 3 fingers: chin to hyoid, 2 fingers: hyoid to thyroid notc. †Mallampati grade of intubation difficulty according to structures visible on maximum mouth opening: I entire opharynx including base of tonsil, II uvula tip and Fauces, III soft palate and base of uvula, IV hard palate only.

Discussion

Acute enlargement of the tongue is rare but a recognised airway hazard that has been classified by Renehan and Morton.[1] Catagories include haematoma resulting from trauma, vascular anomalies or coagulopathy; and also oedema, infarction and infection. This is the first reported case of its type, demonstrating two subclasses of aetiology (trauma and coagulopathy) both mediated by chronic alcohol misuse. Trauma caused by road traffic accident,[2 3] dental surgery[4] and tongue biting in eclamptic seizure[5] have been described. Warfarin appears in several cases as a factor in spontaneous lingual haematoma[6]; additionally streptokinase[7] and haemophilia[8] have been implicated in isolated reports. The value of corticosteroids has been described in previous cases although remains of unproven benefit.[1 6]

Progressive lingual and sublingual swelling displaces the tongue posteriorly and cephalad eventually producing dysphonia, drooling, dyspnoea and finally stridor heralding upper airway obstruction.[4] In the presence of these features, it is axiomatic that a definitive airway must be established early in this sequence, the first step being assessment for ease of intubation.[9] An airway may be assessed according to the "Lemon Law" established by the National Emergency Airway Management Course (USA) (table 1).

The airway was assessed as difficult and the chances of successful intubation via the orotracheal route were thought poor. Consequently

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the management proceeded along the lines of the difficult airway protocol,[9 10] consideration being given in turn to several alternatives.

The first method suggested by the protocol, blind nasal tube intubation, was contraindicated by the presence of upper airway obstruction, coagulopathy and possible neck haematoma. Rapid sequence induction was ruled out because of predictable problems with bag and mask ventilation—that is, loss of airway when supine and presence of facial hair. Fibreoptic intubation via the nasal route under local anaesthetic and sedation was then considered, although also relatively contraindicated by bleeding in, and obstruction of, the upper airway. Consequently a surgical airway was planned and an emergency cricothyroidotomy set prepared as a precaution. Local anaesthetic open tracheostomy, a formidable prospect in an upright, coagulopathic and combative patient, was considered and specialist opinion obtained. The decision not to proceed was influenced by stability of the patient, expected clinical course (once coagulation corrected) and admission to a high dependency unit permitting continuous observation. This case illustrates several of the dilemmas encountered when following established airway algorithms.

Review of the literature shows a total of 21 cases[1–8] of airway obstruction attibutable to tongue swelling, only four of which were managed by active observation (one with fatal consequence). Of the 17 cases with definitive airways, 10 were surgical airways with two cricothyroidotomies and eight tracheostomies. Two of the remaining patients underwent blind nasal tube intubation, two had fibreoptic intubation and in the other four cases the method of intubation was not specified.

While the immediate value of simple airway manoeuvres (such as sitting forwards, nasopharyngeal tube) are not in question, a definitive airway will be required in most cases. Management of acute tongue swelling by active observation should thus be approached with extreme caution. Both current protocol and case history suggest that a surgical airway is often indicated. In every case, urgent consultation with senior anaesthetic and surgical staff is advised.

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